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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,436	09/12/2003	Stephan Kirchmeyer	CH-7771/STA208	8141
34947	7590	09/22/2005	EXAMINER	
LANXESS CORPORATION 111 RIDC PARK WEST DRIVE PITTSBURGH, PA 15275-1112			VU, HUNG K	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/661,436	Applicant(s) KIRCHMEYER ET AL.	
	Examiner Hung Vu	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☒ This action is FINAL.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-9,12-15,22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,12-15,22 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-9, 12-14 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al. (PN 6,025,462, of record).

Wang et al. discloses, as shown in Figures 1-6, a compound comprising,

a core-shell structure comprising a core of multifunctional units,

a shell of linear conjugated oligomeric chains each having a terminal capping group of a flexible nonconjugated chain,

wherein the core-shell structure of the compound is represented by the the formula as claimed.

Regarding claim 3, Wang et al. discloses the core comprises dendritic structures.

Regarding claim 4, Wang et al. discloses the core contains 1,3,5-phenylene units as dendritic structures.

Regarding claim 5, Wang et al. discloses the core comprises hyperbranched structures.

Regarding claim 6, Wang et al. discloses the core comprises contains a hyperbranched polymer as hyperbranched structures.

Regarding claim 7, Wang et al. discloses the liner conjugated oligomeric chains of the shell contains residues selected from the group consisting of substituted 2,5-thiophene, unsubstituted 2, 5-thiophenes, substituted and unsubstituted 1,4-phenylenes.

Regarding claim 8, Wang et al. discloses the liner conjugated oligomeric chains the shell contains residues selected from the group consisting of unsubstituted 2, 5-thiophenes and 2,5-(3,4-ethylenedioxythiophene).

Regarding claim 9, Wang et al. discloses the linear conjugated oligomeric chains have a chain length of from 2 to 7 units.

Regarding claim 12, Wang et al. discloses the alkyl radicals are selected from the group consisting of n-hexyl, n-decyl or n-dodecyl radicals.

Regarding claim 13, Wang et al. discloses compounds form mosophases at temperatures in the range from 50°C to 300°C

Regarding claim 14, Wang et al. discloses compounds are semiconductive.

Regarding claim 22, Wang et al. discloses electronic components comprising compounds according to claim 1 as semiconductor.

2. Claims 1, 3-9, 12-14 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Burn et al. (WO 01/59030, of record).

Burn et al. discloses, as shown in Figures 1-31 a compound comprising,

a core-shell structure comprising a core of multifunctional units,  
a shell of linear conjugated oligomeric chains each having a terminal capping group of a flexible nonconjugated chain,

wherein the core-shell structure of the compound is represented by the the formula as claimed.

Regarding claim 3, Burn et al. discloses the core comprises dendritic structures.

Regarding claim 4, Burn et al. discloses the core contains 1,3,5-phenylene units as dendritic structures.

Regarding claim 5, Burn et al. discloses the core comprises hyperbranched structures.

Regarding claim 6, Burn et al. discloses the core comprises contains a hyperbranched polymer as hyperbranched structures.

Regarding claim 7, Burn et al. the liner conjugated oligomeric chains of the shell contains residues selected from the group consisting of substituted 2,5-thiophene, unsubstituted 2, 5-thiophenes, substituted and unsubstituted 1,4-phenylenes.

Regarding claim 8, Burn et al. discloses the liner conjugated oligomeric chains the shell contains residues selected from the group consisting of unsubstituted 2, 5-thiophenes and 2,5-(3,4-ethylenedioxythiophene).

Regarding claim 9, Burn et al. discloses the linear conjugated oligomeric chains are chains having a chain length of from 2 to 7 units.

Regarding claim 12, Burn et al. discloses the alkyl or alkoxy groups are n-hexyl, n-decyl or n-dodecyl groups.

Regarding claim 13, Burn et al. discloses compounds form mesophases at temperatures in the range from 50°C to 300°C

Regarding claim 14, Burn et al. discloses compounds are semiconductive.

Regarding claim 22, Burn et al. discloses electronic components comprising compounds according to claim 1 as semiconductor.

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (PN 6,025,462, of record).

Regarding claim 15, although Wang et al. does not teach the mobilities of the compounds, as that claimed by Applicants, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the compounds having a desired mobilities, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 23, Wang et al. discloses all of the claimed limitations except radical of the nonconjugated chain. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the compound of Wang et al. having the radical as that claimed by Applicant, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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4. Claims 15 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burn et al. (WO 01/59030, of record).

Although Burn et al. does not teach the mobilities of the compounds, as that claimed by Applicants, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the compounds having a desired mobilities, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 23, Burn et al. discloses all of the claimed limitations except radical of the nonconjugated chain. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the compound of Burn et al. having the radical as that claimed by Applicant, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

#### ***Response to Arguments***

5. Applicant's arguments filed 06/27/05 have been fully considered but they are not persuasive.

It is argued, at pages 6-7 of the Remarks, that the R-group of the outermost R-substituted thiophene monomer residue is part of and not separated from the monomer residue to which is connected. This argument is not convincing because Wang et al. discloses a plurality of chains connected to the core and the R-group of the outermost R-substituted thiophene monomer



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residue of one chain is separated from the monomer residue of other chains. It is noted that the features upon which applicant relies (i.e., R-group ... not separated from the monomer residue to which is connected) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued, at page 7 of the Remarks, that substituents of the terminal aromatic group are part of and not separate from the terminal aromatic groups to which they are attached. This argument is not convincing because Burn et al. discloses a plurality of rings, Z, and the Z of one ring is separated from the other rings. It is noted that the features upon which applicant relies (i.e., substituents ... separate from the terminal aromatic groups to which they are attached) are not recited in the rejected claim(s).

### *Conclusion*

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Tuesday-Friday 6:00-4:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Steven Loke can be reached on (571) 272-1657. The Central Fax Number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

September 16, 2005

A handwritten signature in cursive script, appearing to read "Hung Vu", is written above a horizontal line.

Hung Vu

Primary Examiner